

WHAT IS CLAIMED IS:

1. A module for optical communication having a semiconductor laser active region, an optical modulation region for modulating the light from the semiconductor laser active region and a temperature control region for the temperature control of at least the optical modulation region in which the semiconductor laser active region has a multiple-quantum well structure having at least two quaternary mixed crystal layers selected from the group consisting of quaternary mixed compounds of In, Ga, Al and As and a quaternary mixed compounds of In, Ga, N and As, and at least the temperature of the semiconductor laser active region or the temperature of a component in thermally contact with the semiconductor laser active region for holding the semiconductor layer active region can be set to 35°C or higher during operation of the semiconductor laser active region and the optical modulation region.

2. A module for optical communication as defined in claim 1, wherein the temperature control component is a heating component or a heater.

3. A module for optical communication as defined in claim 1, wherein the temperature control component is disposed without having a cooling component.

4. A module for optical communication as defined in

claim 1, wherein the temperature of at least the semiconductor laser active region or the component thermally in contact with the semiconductor laser active region for holding the semiconductor laser active region can be set to 30°C or higher during operation of the semiconductor laser active region and the optical modulator region.

5. A module for optical communication having a semiconductor laser active region having at least two active regions, an optical modulation region for modulating the light from the semiconductor laser active regions and a temperature control component for temperature control of at least the optical modulation region, and a control component for controlling the wavelength of the light emitted from the semiconductor laser active region in which the semiconductor laser active region has a multiple-quantum well structure having at least two quaternary mixed compounds layers selected from the group consisting of quaternary mixed compounds of In, Ga, Al and As and a quaternary mixed crystals of In, Ga, N and As, and the temperature of at least the semiconductor laser active region or the temperature of the component in thermally contact with the semiconductor laser active region for holding the semiconductor layer active region can be set to 35°C or higher during operation of the semiconductor laser active region and the optical modulation region.

6. A module for optical communication as defined in

claim 5, wherein the temperature control component is a heating component or a heater.

7. A module for optical communication as defined in claim 5, wherein the temperature control component is disposed without having a cooling component.

8. A module for optical communication as defined in claim 5, wherein the temperature of at least the semiconductor laser active region or the component thermally in contact with the semiconductor laser active region for holding the semiconductor laser active region can be set to 30°C or higher during operation of the semiconductor laser active region and the optical modulation region.

9. A module for optical communication as defined in claim 5, wherein the semiconductor laser chip region and the optical modulation region are constituted, respectively, with semiconductor chip regions separately from each other.

10. A module for optical communication as defined in claim 5, wherein the semiconductor laser chip region and the optical modulation region are constituted as semiconductor chip regions integrated on one identical substrate.

11. A module for optical communication having a semiconductor laser active region, a plurality of optical modulation regions for modulating the light from the semiconductor laser active region, a multiplexer for multiplexing the outputted light and a temperature control

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component for temperature control of at least the optical modulation region, in which the semiconductor laser active region has a multiple-quantum well structure having at least two quaternary mixed crystal layers selected from the group consisting of quaternary mixed compounds of In, Ga, Al and As and a quaternary mixed compounds of In, Ga, N and As, and the temperature of at least the semiconductor laser active region or the temperature of the component in thermally contact with the semiconductor laser active region for holding the semiconductor layer active region can be set to 35°C or higher during operation of the semiconductor laser active region and the optical modulation region.

12. A module for optical communication as defined in claim 11, wherein the temperature control component is a cooling component or a heater.

13. A module for optical communication as defined in claim 11, wherein the temperature control component is disposed without having a cooling component.

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14. A module for optical communication as defined in claim 11, wherein the temperature of at least the semiconductor laser active region or the component thermally in contact with the semiconductor laser active region for holding the semiconductor laser active region can be set to 30°C or higher during operation of the semiconductor laser active region and the optical modulator region.